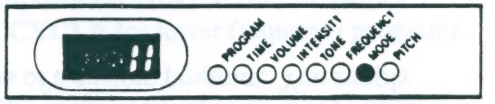
•FREQUENCY
Range: 0.05-40.0 Hz

The **FREQUENCY** function controls the rate of light and sound stimulation pulses. See **RATE MULTIPLE** for how it affects **FREQUENCY.**

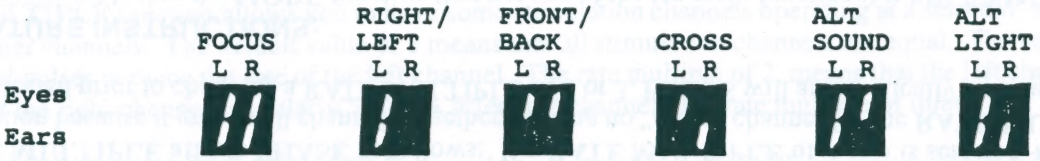
•MODE

When the **MODE** light is on, three different functions are displayed. The brightest of the three display digits is the one currently selected. Going from right to left, these functions are:

- PHASE (also see **BLEND** below)
Range: see chart below



The **PHASE** function controls the phasing of the stimulation to the four stimulation channels (right eye, left eye, right ear, left ear). If two stimulation channels are "on" at once, they are said to be in phase. If one is on while the other is off, they are out of phase, or alternating. The various **PHASE** options provide stimulation phasing represented by the following chart:



For example, in FOCUS, all stimulation channels are on and off at the same time. In Right/Left, the left eye and ear are both on while the right eye and ear are both off, and then they switch, etc. The above chart shows the various phasing options available as they appear on the display.

NOTE: RATE MULTIPLE affects **PHASE** as follows: If a **RATE MULTIPLE** of 2 or 3 is selected, **FOCUS** will no longer be an option because it groups all channels together, leaving no "other" channel for the **RATE MULTIPLE.** If FOCUS was selected prior to choosing a RATE MULTIPLE of 2 or 3, FOCUS will automatically be changed to R/L.

- BLEND FEATURE INSTRUCTIONS:

Another feature accessible thru the **MODE** function (but not one of the ten main functions) is **"BLEND."** The Blend feature provides smooth transitions between mode changes during a program. This feature can ***only*** be activated ***prior*** to the execution of a program, and is enabled at that time.

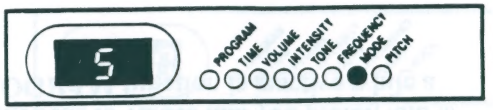
Since the PHASE function is controlled by the design of the program, choosing blend will not over-ride any PHASE stimulation state changes. It will only "soften" the transitions between mode changes in the built-in, or custom program. Therefore, do ***not*** choose Blend while designing and entering the PHASE selections of a custom program. You simply "switch" it on, or off, just prior to starting a program.

Since there are no state changes while using manual mode, other than the stimulation changes you may initiate while cycling through the function keys, Blend is not applicable to manual mode.

To enable the Blend feature prior to running a program, follow these steps:

1) Press the **SELECT** key until the first digit area (the PHASE selection) of the MODE function is illuminated.
2) Press the **UP** key, cycling through the PHASE selections until the letter "b" appears (this is the last available selection).
3) Once "b" is displayed, Blend has been activated and will "Blend" the mode changes of the next program you run.
4) If you want to have Blend activated for all programs, you may select it as a default setting in your Personal Preference Program. (see ADVANCED FEATURES).
5) **To disable the Blend feature**, just select any PHASE value other than "b".

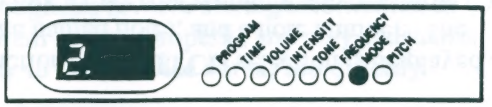
- DUTY CYCLE
Range: 1 thru 9. (10% to 90%)



The **DUTY CYCLE** function controls the pulse width, or percentage of the total cycle time that a stimulation pulse (light or sound) is "on." The default value of 5 represents 50% on, 50% off during the stimulation pulse. A **DUTY CYCLE** display of 4 equals 40% on, 60% off, 3 equals 30% on, and 70% off, and so on. At a duty cycle setting of 7, the light will stay on longer when it flashes than at a setting of 3. Thus a lower setting will produce a sharper pattern than a higher setting. Experiment with various settings to determine which suits you best. When you decide on one, enter into your **Personal Preference Program** so you won't have to change it each time.

NOTE: high frequency pulses tend to run together and create a blurry effect. To improve the effect of beta frequency programs, choose a lower **DUTY CYCLE** value. In general, use a higher **DUTY CYCLE** for lower frequency programs, and a lower **DUTY CYCLE** for higher frequency selections.

- RATE MULTIPLE
Range: G*, 1, 2, 2., 3, 3.
*G (Ganzfeld) available only with white light glasses.



The **RATE MULTIPLE** function allows you to have some stimulation channels operating at a selected "multiple" of the frequency of other channels. The default value of 1 means that all stimulation channels are equal. The value 2 means that the right channel pulses at twice the rate of the left channel. The rate multiple of 2. means that the left channel pulses at twice the rate of the right channel. Similarly, 3 and 3. affect the channels at a rate multiple of three.

As discussed in **PHASE,** the **RATE MULTIPLE** control interacts with the **PHASE** selection. When a **RATE MULTIPLE** other than 1 is selected, the **PHASE** selection of FOCUS becomes inactive, and will automatically change to R/L.

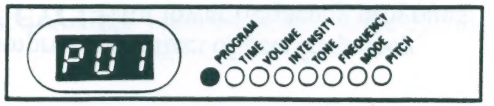
Since **RATE MULTIPLE** interacts with **FREQUENCY**, the maximum stimulation rate allowed is 20 Hz (resulting in 40 Hz in the "other" channel) when selecting 2, and 12.5 Hz when a **RATE MULTIPLE** of 3 is selected.

G indicates the **Ganzfeld** "blank-out"effect and works *only* with the optional white-light goggles. Research has shown this effect to be one of the most reliable techniques for changing states of consciousness. When using the PR-2X in this way, you look at the translucent overlay with eyes open. Although the lights stay on constantly, the sounds will still pulse at any frequency desired. (For more information, see "Gazing Hard Into the Void" in *Megabrain* by Michael Hutchison.)

•PITCH
Range: Three octaves (36 notes)

The pitch of the pulsed tone and binaural sound is controlled by the **PITCH** function. The **PITCH** selection is displayed as its piano keyboard name, with a decimal representing a sharp (half step above the named note), and a note number. The Actual frequency range is from 92.5 Hz (the second F sharp below middle C) to 698.47 Hz (the second F above middle C). When the White or Pink Noise tones are selected, **PITCH** is inactive.

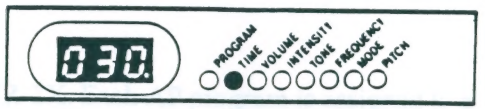
•PROGRAM
Range: E, PPP, APS-APd, P01-P50, U51-U60



There are 50 built-in programs (P01-P50), plus "AUTOPILOT™", which provides unlimited programs. You can create up to 10 more custom programs (U51-U60), which do not exist and will not be displayed until you create them. The **E** program allows to enter custom programs U51 thru U60, or you can use these areas to store "AUTOPILOT™" programs (see **ENTERING CUSTOM PROGRAMS,** and **"AUTOPILOT™" PROGRAMS**, page 19).

The PPP selection allows you to change the default values of all stimulation functions to values that you prefer, and is discussed in **PERSONAL PREFERENCE PROGRAMS,** page 18. The **PROGRAM** function is inactive while a program is running.

•TIME



NOTE: The time function can only be accessed :

1. While changing the duration of a built-in program, as discussed in **CHANGING PROGRAM RUN TIME,** page 19.
2. When viewing how much time remains in a given program after that program has been started.
3. When selecting the duration of various stimulation states in custom programs, as discussed in **ENTERING CUSTOM PROGRAMS,** page 20.

Time cannot be set while in **manual mode** because it runs until it times out after 30 minutes (unless a key is pressed) .

ADVANCED FEATURES

CAUTION: The PERSONAL PREFERENCE PROGRAM (PPP) and custom programs involve storing information in internal memory. Rapid on/off cycles (less than one second) do not allow the system to reset properly, and may cause loss of information. **Use caution not to move the PWR switch from BATT, directly to ON, or vice versa, too quickly.**

•PERSONAL PREFERENCE PROGRAM (PPP)

All functions have built-in default values that are in effect until you change them. Some functions, particularly **VOLUME** and **INTENSITY,** can be distinctly personal and you may prefer some other value than the built-in default value. To avoid the inconvenience of setting your preferred values each time the system is turned on, use the **PERSONAL PREFERENCE PROGRAM** that is provided for this purpose.

To store your own personal preferences, select the **PROGRAM** function and press **DOWN** until PPP (Personal Preference Program) is displayed. Then press **ENTER** - the **PROGRAM** light will blink, indicating that you are now ready to enter information. Don't worry about mistakes, they are easy to correct.

SETTING PERSONAL PREFERENCE PROGRAM (PPP)

Select each function that you want to control, and then set the new default value for that function. For example, if you want the system to turn on with program P03, VOLUME 75, and INTENSITY 90 as default values, press **SELECT, UP,** and **DOWN** until those functions display those values. You can cycle through all of the functions again with **SELECT** to be sure they are set to your preferred values. Then press and hold **ENTER** until the display goes blank. Release **ENTER.** Your personal preferences are now recorded and will come up each time you turn the system on.

Anytime you want different values but don't want to change your PPP, simply override your PPP values with the **SELECT** key before running a program. After using the system for awhile, you may find that your preferences have changed. No problem — just record the new values the same way you did the first time.

•CHANGING PROGRAM RUN TIME

To run a program faster or slower than its normal program run time:

- •Select the program you want to run and press **ENTER.**
- •During the 10 second countdown, press **SELECT.** The **TIME** function will be selected and the normal program time duration will be displayed in minutes.
- •Use the **UP** and **DOWN** keys to select a shorter (minimum = 5 minutes) or longer (maximum = 120 minutes) program run time.
- •When the time duration you want is displayed, press **SELECT,** or **ENTER,** and the system will continue the countdown.

Each stimulation sequence contained in a program will then be proportionately lengthened or shortened to fit the new program run time you have chosen.

•AUTOPILOT™ PROGRAMS (AP™)

This revolutionary innovation was created by Mind Gear™ and is unique to the PR-2X. Each AP program is assigned to a category of brain wave frequencies, and each time you run an AP program the PR-2X system will generate a new and unique program targeted to the frequency range you select! If you enjoyed the program that the AP feature generated, you will then have the option to "capture" this program for future use (up to 10 different ones). This AP feature provides virtually an unlimited number of built-in programs and is available only from Mind Gear™.

The **AP** program options are displayed as follows:

For **Delta** Frequency programs (0.5-4 Hz), the display will show **APd**
For **Theta** Frequency programs (4-7 Hz), the display will show **APH**
For **Alpha** Frequency programs (7-14 Hz), the display will show **APA**
For **Beta** Frequency programs (15-30 Hz), the display will show **APB**
For **Super Beta** Frequency programs (30-40 Hz), the display will show **APS**

NOTE: A final 2 minute ramp back to the starting frequency is generated for any non-Delta AP program. If the AP program is a Delta, the final 2 minutes do not involve frequency changes, therefore Delta AP programs end in Delta.

- STARTING AN "AUTOPILOT™" PROGRAM

Once you have the correct AP program displayed (located **DOWN** from P01), press the **ENTER** key and the system will begin a 10 second countdown while displaying the location for the AP program. All AP programs are preset to run for 30 minutes, but you can change the length of time on these programs just like any other.

VERY IMPORTANT NOTE: The AP program will be stored in the next available location, or location 'U60' if all 10 user programs are already in use. As soon as you hit the ENTER key, any previous program in that location is overwritten IRRETRIEVABLY. During the countdown, the leftmost digit counts down, and the right two digits identify the location where the AP program resides - eg. 'x57' where x counts down and 57 is the first available location.

- SAVING AN "AUTOPILOT™" PROGRAM

After running an **AP** program, the PR-2X system will automatically assign a new program number (U51-U60) and prompt you to decide if you wish to save it as that number. If you wish to save the program for future playback, you ***must*** press the **ENTER** key ***first*** before any other key and the program will then be saved under the number that was flashing. If you ***do not*** wish to save the program, simply press the **SELECT** key (or any key besides ENTER) and the program ***will not*** be saved.

NOTE: We suggest taking the time to write down the program number and type of any "AUTOPILOT™" programs you save. This way you may refer to them for future use.

•CREATING CUSTOM PROGRAMS

After experimenting with the built-in programs and the various stimulation options available, you may want to create your own unique stimulation programs. The PR system provides room for storage of 10 custom programs. You can always overwrite an old program, but you cannot store more than 10.

The custom programs you enter will be labeled under the program numbers, U51 thru U60 (**UP** from P50). These custom program numbers are assigned in ascending numerical sequence, and do not exist nor will they be displayed until you create them.

The program entering sequence is simple, but does not allow editing like a word processor. To change an incorrect entry, you must start over. For this reason, we suggest writing down the sequence of stimulation states that you want the system to perform. Also, record the program number you used to store it. A form is provided for this purpose with your system. **Make copies so you will always have blank originals.**

- TO CREATE CUSTOM PROGRAMS:

- •Select the program function. Press **DOWN** until **E** is displayed.
- •Press and release **ENTER.** The display will shift to the next unused program number, or U60 if all 10 custom program numbers have been used (see **note** below). You cannot skip over unused program numbers.
- •Press and release **ENTER** again. The function light will blink on FREQUENCY, and the normal default frequency will be displayed.

You are now ready to enter your custom program. You can use ^ or v to select a location to store a program.Your custom program is a series of timed stimulation states, so repeat the following steps as required to enter all of the states you want.

Using **SELECT, UP,** and **DOWN,** set all functions to the values you want for each stimulation state. Use the goggles and headphones to be sure of your choices. You can cycle through all functions and verify the displayed information. When everything is right, press and release **ENTER.** The **TIME** LED will light.

Use **UP** and **DOWN** to select the length of time each stimulation state will last. The minimum is 1 second, the maximum will be 20 minutes or less. Minutes are to the left of the decimal point, seconds to the right. When the time you want is displayed, press and release **ENTER** and that stimulation state will be recorded.

The **FREQUENCY** function will be automatically selected again, and the system is ready for you to enter your next stimulation state. Simply repeat the process until all stimulation states have been entered.

When your program is complete, press and HOLD **ENTER** until the display goes blank. Release **ENTER.** Your custom program is now stored and can be run in the same way as any built-in program.

NOTE: If you enter data over an existing custom program number (this includes stored "AUTOPILOT™" programs), the old program will be overwritten. However, you cannot skip over program numbers that have not yet been used, so overwriting an existing program will not be possible until you have used all 10 custom program numbers. This will happen as you create them, or by storing "AUTOPILOT TM" programs. At that point, program number U60 will be displayed, and you may write over any custom program — in any order you wish.

•PROGRAM ENTRY CAPACITY

Each custom program can store 200 bytes of information. If you compose a long program with many stimulation state changes, you may run out of memory. The system will automatically terminate program entry and return the system to the manual state if this happens. The program will be stored intact as far as you entered it. To save memory so the maximum number of stimulation states can be entered, note the following tips:

When a stimulation state is recorded, every function that has changed in value will be recorded. If you experiment with a function by changing its value, and then restore the original value, the system still treats this as a change and uses memory to record it. So experiment with various functions while in manual mode, and then change and record only the functions you want to change while programming.

The maximum time duration of a program is 120 minutes, unless you pause the program. When you near the total time limit, the system will automatically limit time durations to fit the maximum 120 minutes. If you reach the 120 minute time limit before you are finished, the program will automatically terminate, as it will if available memory is exceeded. All entries to that point will be recorded and remain intact.

•ERASING ALL STORED CUSTOM, PPP, AND "AUTOPILOT™" PROGRAMS

To erase all stored programs, including Personal Preference and "AUTOPILOT™" programs, follow these steps:

1) Turn the system on and press the **DOWN** key until the letters **ErA** appear in the display.
2) Press the **ENTER** key - the system will begin flashing all function lights and the **ErA** display.
3) Press the **ENTER** key again if you want to erase **ALL** the custom programs, the Personal Preference Program, and all "AUTOPILOT™" programs that you have stored for later playback.
4) The system will now count down from 6 to 0. After it has reset it will display P01.

TROUBLESHOOTING TIPS

Problem: After running normally for a while, the system starts acting strangely.

Suggestion: The battery may be getting low. See if running the system with the AC adapter fixes the problem. If so, recharge the battery (leave the AC adapter plugged in over night).

Problem: The **FREQUENCY** function only goes up to 12.5 or 20.

Solution: A **RATE MULTIPLE** of 2 or 3 has been selected. Change the setting back to 1 to get higher frequencies.

Problem: The display shows a single hyphen (-), and the switches don't work.

Solution: The battery is low, or the system has timed out. Turn the power off, and then on again. If the hyphen returns, or the system fails to come up properly, recharge the battery.

Problem: The headphones make a loud popping noise and the goggles don't work at all.

Solution: You have the headphones connected to **LIGHT,** and the goggles plugged into **SOUND!**

CAUTION: *The AC adapter that came with your system is selected for proper operation. AC adapters with different voltages or polarity can damage your system.*

MOST FREQUENTLY ASKED QUESTIONS

Q: How long does the battery last?
A: Approximately 5 hours depending on the program and level of stimulation intensity.

Q: Which are the best programs to use?
A: You are ultimately the judge of which programs are best for you.

Q: Should I always set the light intensity to the brightest level?
A: Not necessarily. Set it to a comfortable level that allows your eyes to relax. In fact, some researchers have found that lower light levels work best to facilitate changes in functioning.

Q: Which Tone type is best?
A: Tone is a personal preference. Binaural sounds (beat frequencies) will entrain brain waves effectively when using the system without light stimulation and therefore are even more powerful with lights, however, there will be no difference between some of the different modes when using binaural sounds.

Q: How often and how long should I use the system?
A: As much as you like. Start with frequent use - you may need to use it less later.

Q: How do I use the system for accelerated learning?
A: (1) Try a beta program before studying to clear cobwebs when you don't feel sharp. (2) To focus during study, use Binaural tones with just the headphones, or run the tone through your stereo. (3) Study right after an L/S session of deep relaxation. Research has proven this is a powerful time to learn. (4) Use the system with an external informational tape, such as a language, affirmations, etc. (5) After studying, a deep relaxation session can help information "set."

Q: What color LED's are best for the goggles?
A: All work well, however, photosensitive persons may prefer green for its soothing effect, or white with color diffusers.

THE NEXT STEP

We at Mind Gear Inc. want to help you learn more about this exciting field and spread the word to your friends and associates. We have several ways to do this:

1.) If you refer a new customer to us, we will give you a $50 gift certificate that you can use toward any of our products.

2.) If you wish to market our products, please contact us for dealer pricing and details. NOTE: We are especially interested in distributors in countries outside the U.S..

3.) If you have Internet access, visit our Website for the latest on new products, research, and ways to use this techonology. The address is: http://www.netcreations.com/mindgear/

4.) If you wish to participate in the email discussion group Mind-L, please send a message to: <listproc@gate.net> with "subscribe mind-l (your name)" in the body of the message.
The address for posting messages to the list is: mind-l@gate.net. See you on the list.

5.) Request our catalog of products that enhance the benefits of your PR-2X. The catalog features psychoactive tapes to use during Light & Sound sessions, the L/S TurboCharger that adds another dimension to your system with TENS and CES, a low-cost EEG that connects to your PC, books that will increase your understanding of mind machine technology, and much more!

WARRANTY PROVISIONS

WARRANTY DURATION

Mind Gear systems are warranted to the original consumer purchaser for a period of one year from the original purchase date.

WARRANTY COVERAGE

The systems are warranted against defects in materials or workmanship. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, improper service, or other causes not arising from defects in materials or workmanship.

WARRANTY RETURNS

During the warranty period, a defective system will be repaired or replaced (at the option of Mind Gear) when the product is returned postpaid to:

MIND GEAR
9424 MERCANTILE DR.
MENTOR, OHIO 44060
1.800.525.MIND (6463) or 1.216.354.5159

The repaired or replaced unit will be under warranty for three months or the remainder of the original warranty period, whichever is longer. Other than shipping, there is no charge for such repair or replacement. We strongly recommend that you insure the product for its value prior to shipping.

If you break the frame of your goggles without damaging the electrical parts, we will repair them for $10 plus shipping. Out-of-warranty systems that have not been physically damaged will be repaired for $35 plus shipping.

NOTE: The Warranty Registration card must be completed and returned before any warranty request will be honored.

OPERATIONS SUMMARY

MAKE CONNECTIONS, TURN ON SYSTEM

- •Headphones to the **SOUND** jack., Stimulation goggles to the **LIGHT** jack.
- •AC adapter to the **PWR** jack and to a 120 volt wall outlet (if you want to conserve or recharge the battery).
- •External cassette or CD player to the **EXT** jack via the stereo cord (this connection is optional).
- •Power switch to BATT (or ON if using AC adapter).

VIEW OR CHANGE FUNCTION VALUE

- •Press **SELECT** repeatedly until the desired function is selected.
- •Press (hold) **UP, DOWN** until the desired value is displayed.

RUNNING A PROGRAM

- •Select the desired program with **SELECT, UP, DOWN.**
- •Get comfortable. Put the headphones and goggles on.
- •Press **ENTER. GENTLY CLOSE YOUR EYES.**
- •At End, press and hold **ENTER** until the display goes blank. Release

PAUSING A PROGRAM

- •Press and release **ENTER.** To restart, Press and release **ENTER.**

STOPPING A PROGRAM

- •Press and hold **ENTER** until the display goes blank. Release.

CHANGING PROGRAM RUN TIME

- •Select the desired program, press and release **ENTER** to start countdown. During countdown, press **SELECT.** The normal program run time will be displayed.
- •Use **UP, DOWN,** to select the desired run time, press and release **SELECT,** or **ENTER.**

ENTERING A PERSONAL PREFERENCE PROGRAM

- •Select the **PROGRAM** function, **DOWN** to **PPP,** press and release **ENTER.**
- •Set all functions to desired values.
- •Press and hold **ENTER** until the display goes blank. Release.

ENTERING A CUSTOM PROGRAM

- •Select the **PROGRAM** function, **DOWN** to E, press **ENTER.**
- •Use **UP, DOWN** to select the program to be entered, press **ENTER.**
- •Set stimulation functions. Press and release **ENTER.**
- •Select time duration. Press and release **ENTER,** repeat above step.
- •When done, press and hold **ENTER** until the display goes blank. Release **ENTER.** Your program is stored.